

GLA SERIES

COMPACT CNC TURNING CENTERS



THE ULTIMATE MACHINING POWER
WOODWAY®

COMPACT CNC TURNING CENTERS

The world is constantly changing, manufacturers face fast lead time and less profit subject. It is urgent need to source high price-performance ratio equipment to increase productivity. GOODWAY GLA series is epoch-making product that can satisfy this requirement. This series is developed based on small parts processing, small floor space but with excellent processing capacity. From single machine to automation production can find a best way to meet all processing requirements.

To provide best price-performance ratio on turning centers with 6" chuck.

Compact machine design, economical component cost, flexible automation integration capability.

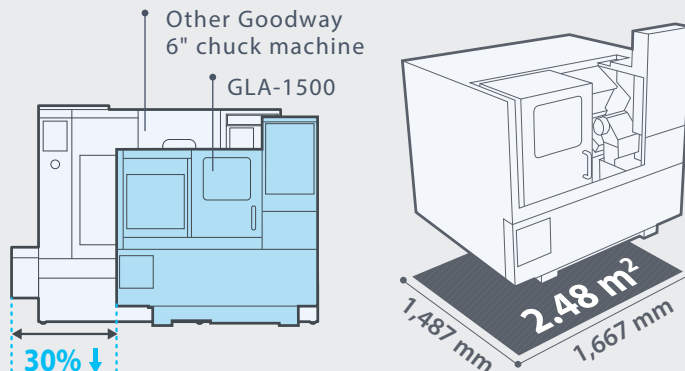
Maximum unit space output value, never seen before!



(GLA-1500M model shown with optional accessories.)

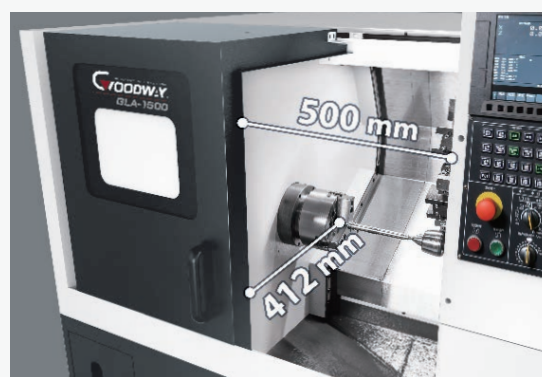
Compact Machine Size

According to optimization contracture design, GLA series achieve extremely small floor space. Compare to other 6" chuck GOODWAY machine, GLA series machine size decrease 30%. Especially the machine width is only 1,667 mm. Production line could be more compact, save factory space, improve work efficiency.



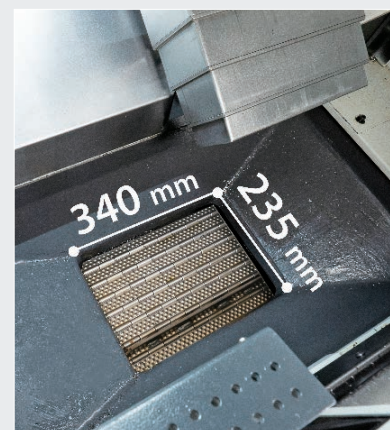
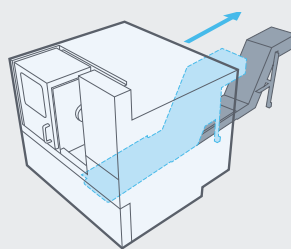
Easy Operation

GLA series is a small machine but according to ergonomics best design to provide operator a convenient environment to install tooling and loading/unloading.



Chip Removal Solution

- ▶ The chip flute design with big bevel and size to let chips pass chip flute quickly to coolant tank. Make sure no chips remains and keep excellent processing accuracy.
- ▶ Optional rear discharge roll-out coolant tank and chip conveyor will not effects factory machine arrangement. It is also easy to connect with central chip disposal system to maximum chip removal.



Cutting Capability

Drill

Material : S45C Model : GLA-1500

Tools	Spindle Speed	Cutting Speed	Feedrate	Spindle Load
Ø25 mm	1,019 rpm	80 m/min.	0.15 mm/rev.	110%

Heavy Cutting

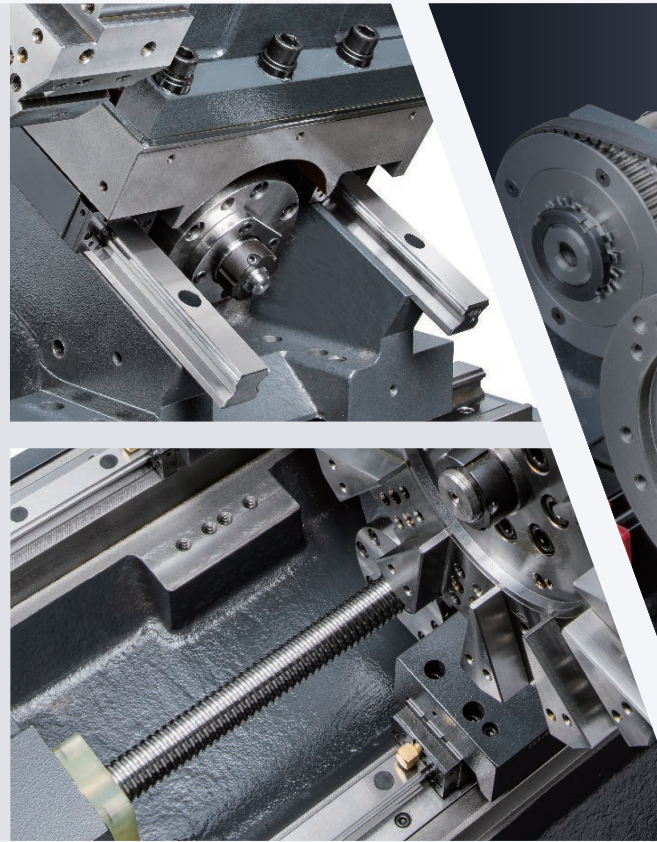
O.D. Before Cut	O.D. After Cut	Spindle Speed	Feedrate	Spindle Load
37.8 mm	31.8 mm	1,500 rpm	0.2 mm/rev.	114%



ADVANCED CONSTRUCTION

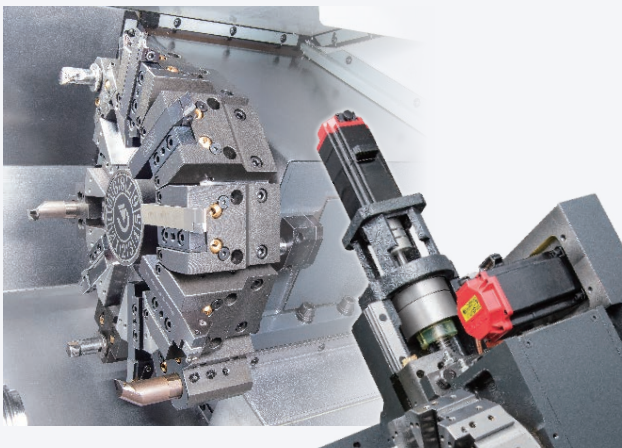
High Rigid Construct Design

- ▶ One-piece bed structure, headstock, turret and other coral components are designed by Finite Element Analysis (FEA). GLA series with high rigid structure by using high tension, high damping and low deforming MEEHANITE casting.
- ▶ X/Z axes adopt high accuracy linear guide ways design, with outstanding controllability and moving efficiency. In addition, sliding block been pre-loaded processing could eliminate the gap and then control thermal deformation to make sure axis direction with higher rigid construction.
- ▶ C3 class hardened and precision ground ball screw ensure the highest accuracy and durability. By using maximize pre-tension processing when assembly, thermal deformation could be decreased and machine keep stable accuracy even work long time.



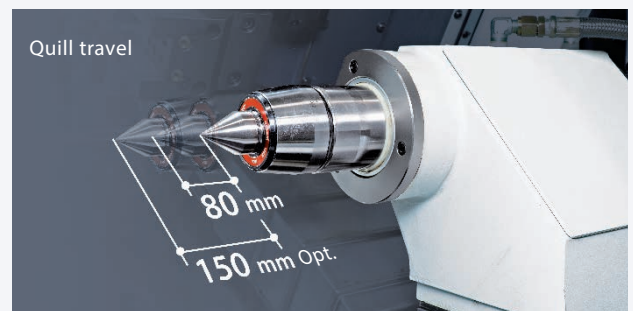
Servo Indexing Turret

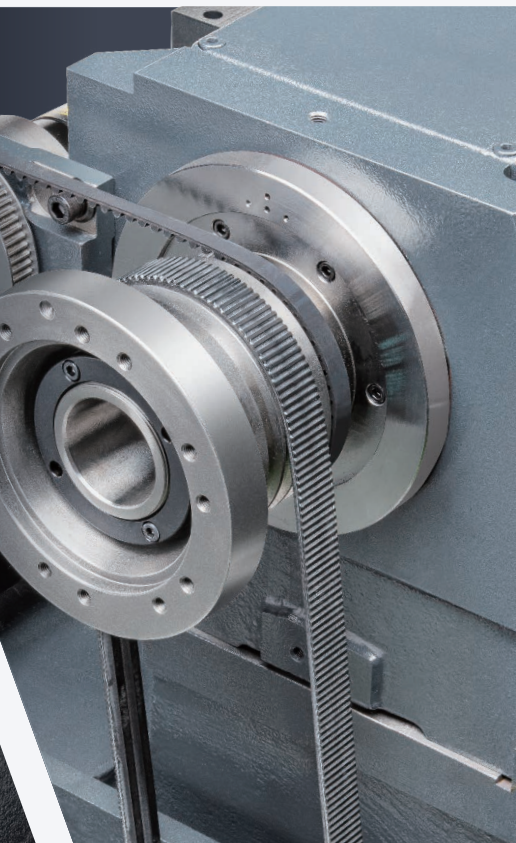
- ▶ The heavy-duty servo indexing turret achieves 0.2 second indexing times for adjacent stations and 0.5 second for stations at the opposite end of the disk. Any tool position can change the tool directly without pauses.
- ▶ All of GOODWAY machines use high precision positioning turret with Curvic Couplings. Curvic Couplings can provide not only the super cutting rigidity for turret but 0.002 mm on repeat positioning accuracy because the big contacting area from Curvic Coupling and auto centering.



Super Rigid Tailstock

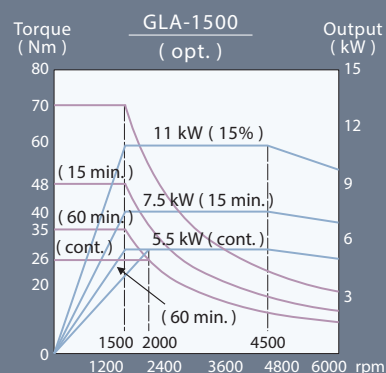
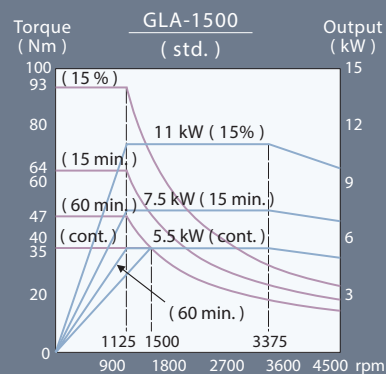
- ▶ The optional tailstock with max. turning length 230 mm can provide the enough support rigidity for long shaft type workpiece, thereby avoiding the deviation of runout when workpiece is turning and suitable with machining requirement of high accuracy.
- ▶ The tailstock base adopts with fix type design and the movement of quill is programmable controlled. When choosing Manual mode, the quill can be moved forward with JOG mode and the tailstock center can support the center of workpiece more convenience and more precision. When choosing Auto mode, the movement of quill can controller by M code and force can be adjusted manually.





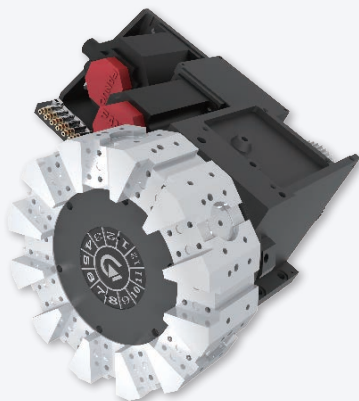
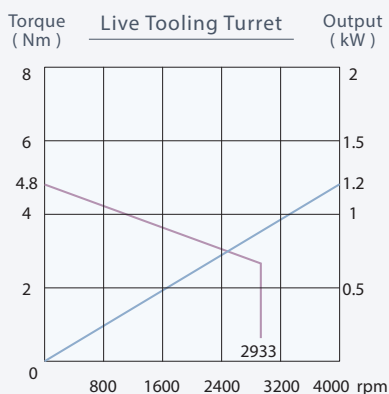
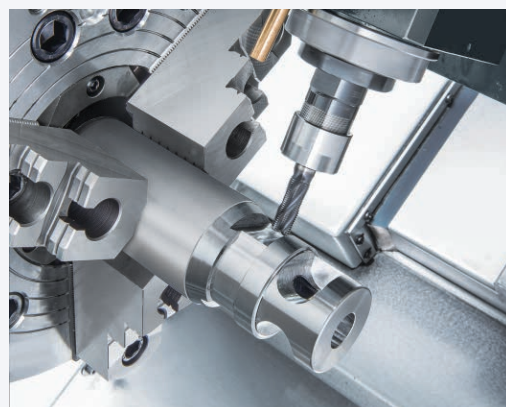
High Performance Spindle

- ▶ P4 class high accuracy spindle bearing inside headstock. Widely spaced for maximum strength provide the rigidity needed for heavy cutting and interrupted turning applications.
- ▶ By precision pulley reduction ratio, motor and spindle can achieve max. turning speed at the same time. Lower full HP output min. turning speed and increase torque to ensure motor reach maximum turning capability.
- ▶ Spindle is driven by high performance V-belt, maintenance is more convenient and decrease heat effect on spindle accuracy.



Optional Live Tooling Turret and C-axis

- ▶ The GLA series is available with an optional live tooling turret, C-axis can work on turning, milling, drilling and tapping tasks at the one machine to decrease setting error when moving work-piece between machines and save the machining time and manpower.
- ▶ GOODWAY 12 stations turret equip 6 live tools which are driven by AC servo motor which can provide ample power, in the form of torque. Now, even the toughest of jobs may be tackled without a sweat.



- ▶ GOODWAY live tooling turret utilizes servo motor on tool change and positioning. Dual direction for quick tool change is also available which can reduce the non-cutting time and increase the work efficiency.
- ▶ Spindle can switch to C-axis servo mode control by Cs-axis design. It can provide the quick and accurate indexing and satisfy the high efficiency production output.

OPTIONAL AUTOMATION SYSTEM

Gantry Loader

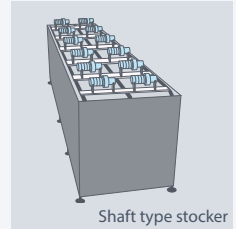


X-axis (Left / Right)	Stroke	1,500 mm
	Max. speed	1,667 mm/sec.
Y-axis (Up / Down)	Stroke	700 mm
	Max. speed	1,333 mm/sec.
Z-axis (Front / Rear)	Stroke	N/A (Opt.)
	Max. speed	N/A (Opt.)
C-axis	Stroke	180°
	Max. speed	1 sec./180° (pneumatic rotary cylinder)
Repeatability	± 0.05 mm	
Jaw	3-jaw (Ø12 mm)	

Stocker

Variable stocker can be chose according to different material type. Super compact stocker size can increase factory space usage.

Material	Disk type	Shaft type
Number of pallets	12	17
Max. work-piece diameter	Ø 150 mm	Ø 60 mm
Min. work-piece diameter	Ø 25 mm	Ø 30 mm
Stack height	350 mm	200 mm
Weight of work-piece / pallet	40 kg	5 kg



Twin Jaws Robot Arm

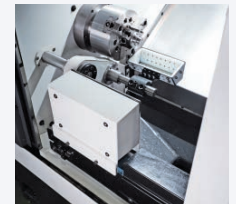
Programmable robot arm with twin jaws design can load and unloading the workpiece with variable shape and quick move to the required position. Easy operation and affordable.

Work-piece	Disk type		Shaft type
Max. clamping weight	1 kgx2	3 kgx2	5 kgx2
Max. clamping dia. x height	Ø80x60mm	Ø120x60mm	Ø60x200mm



Built-in Parts Conveyor

Compare to external parts conveyor, the built-in design can keep the coolant inside of machine to avoid the environment pollution. Meanwhile, there is no distance between operator and working area and keep the operating convenience.



Tool Presetter



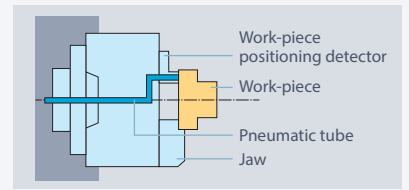
Work-piece Inspection Probe



Auto Door



Light Curtain Safety Device



Pneumatic Work-Piece Positioning Detector

Apply pneumatic flow to detect work-piece and fit of clamping jaw surface. When not adjust closely to fit, robot arm will re-load again to ensure operation safety.

Robot Arm

Auto discharge device
It is available to do the customized integration.



Auto feeding device
Available with vibration feeder and bar feeder etc.



Work-piece size	Diameter	Ø60 mm
	Weight	1 kg
Conveyor (Z-axis)	Stroke	According to requirement
	Max. speed	84 m/min.
Robot arm	Stroke	300 mm
	Max. speed	71 m/min.
Jaw	Rotary angle	90°
	Travel of clamping jaw	10 mm
	Type of clamping jaw	Rotary twin jaw

STANDARD & OPTIONAL FEATURES

S : Standard O : Option
 - : Not Available C : Contact Goodway

SPINDLE		
Main spindle motor configuration	Single-speed	S
Rigid tapping & spindle orientation		S
Spindle disk brake		O
Cs-axis & spindle disk brake*1		O
WORK HOLDING		
Hydraulic hollow cylinder for chuck	6"	S
Hydraulic hollow 3-jaw chuck	6"	S
Hard jaws		O
Collet chuck		O
Special work holding chuck		C
In spindle work stopper		O
Spindle liner (guide bushing)		O
Foot switch for chuck operation		S
Programmable quill hydraulic tailstock		O
MT#4 live center		O
Foot switch for tailstock operation		O
Two-stage programmable pressure	Chuck clamping Tailstock thrust	O O
TURRET		
12-station turret		S
12-station live tooling turret (Available with 6 st. live tooling)		O
Tool holder & sleeve package		S
Live tooling tool holders (0°x2, 90°x2)*1		O
MEASUREMENT		
RENISHAW HPMA tool presetter	Motorized arm	O
COOLANT		
Coolant pump	3 kg/cm ²	S
	5 kg/cm ²	C
	10 kg/cm ²	C
High-pressure coolant system	20 kg/cm ²	C
Roll-out coolant tank		O
Oil skimmer		O
Coolant flow switch		O
Coolant level switch		O
Coolant intercooler system		O
CHIP DISPOSAL		
Chip conveyor with auto timer	Rear discharge	O
Chip cart with coolant drain		O
Chuck air blow		O
Tailstock air blow		O
Coolant gun		O
Oil mist collector		O
AUTOMATIC OPERATION SUPPORT		
Parts catcher		O
Work-piece transport conveyor		O
Bar feeder		O
Bar feeder interface		O
Gantry-type loader / unloader		O
Auto door		O
External M-code output	4 sets (8) 8 sets (16)	O O
SAFETY		
Fully enclosed guarding		S
Door interlock (incl. Mechanical lock)		S
Impact resistant viewing window		S
Tailstock stroke out-end check		S
Chuck cylinder stroke out-end check		S
Chuck cylinder check valve		S
Low hydraulic pressure detection switch		S
Over travel (soft limit)		S
Load monitoring function		O

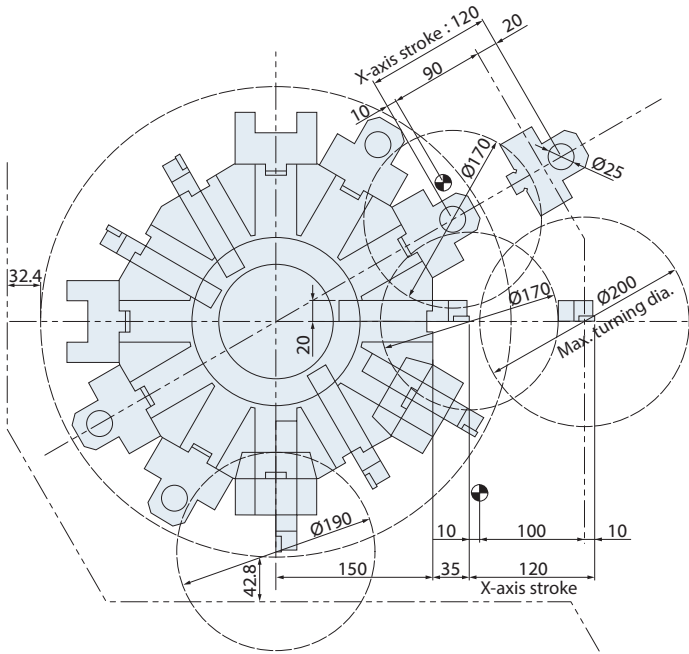
*1 Available for live tooling turret model.

OTHERS		
Electrical cabinet	Heat exchanger	S
	A/C cooling system	O
Complete hydraulic system		S
Advanced auto lubrication system		S
Foundation leveling & maintenance tool kit		S
Emergency maintenance electrical part package		S
FANUC CONTROL FUNCTIONS		
Display	10.4" color LCD	S
Graphic function	Standard	S
	Dynamic	O
Part program storage size O _i -TF : each path	512K bytes	S
	1M bytes	-
	2M bytes	O
	4M bytes	-
	8M bytes	-
Registerable programs O _i -TF : each path	400	S
	1,000	O
	4,000	-
	99	-
	128	S
Tool offset pairs O _i -TF : each path	200	O
	400	-
	499	-
	999	-
	2000	-
Servo HRV control	HRV 3	S
Automatic data backup		S
Inch / metric conversion		S
Polar coordinate interpolation		S
Cylindrical interpolation		S
Multiple repetitive cycle		S
Rigid tapping		S
Unexpected disturbance torque detection function		S
Spindle orientation		S
Embedded macro		O
Run hour and parts count display		S
Tool radius / Tool nose radius compensation		S
Polygon turning		O
Helical interpolation		O
Direct drawing dimension programming		S
Thread cutting retract		S
Variable lead threading		S
Multiple repetitive cycle II		S
Canned cycles for drilling		S
Tool nose radius compensation		O
Chamfering / Corner R		S
AI contour control I		O
Manual handle retract		O
Manual intervention and return		S
External data input		S
Addition of custom macro (#100 ~ #199 , #500 ~ #999)		S
Increment system C		S
Run hour & parts counter		S
Auto power-off function		S
RS-232 port		S
Memory card input / output (CF + USB)		S
Ethernet		S

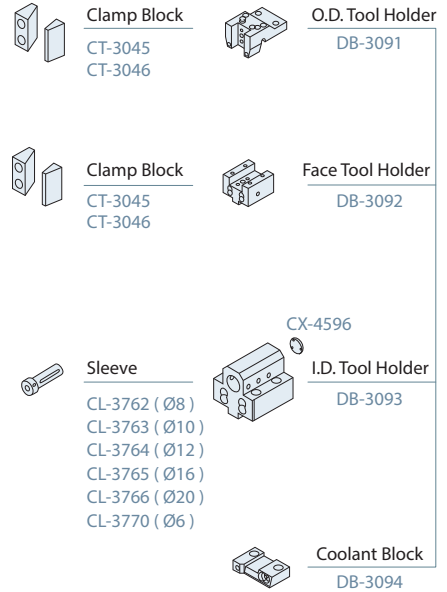
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12-Station Turret

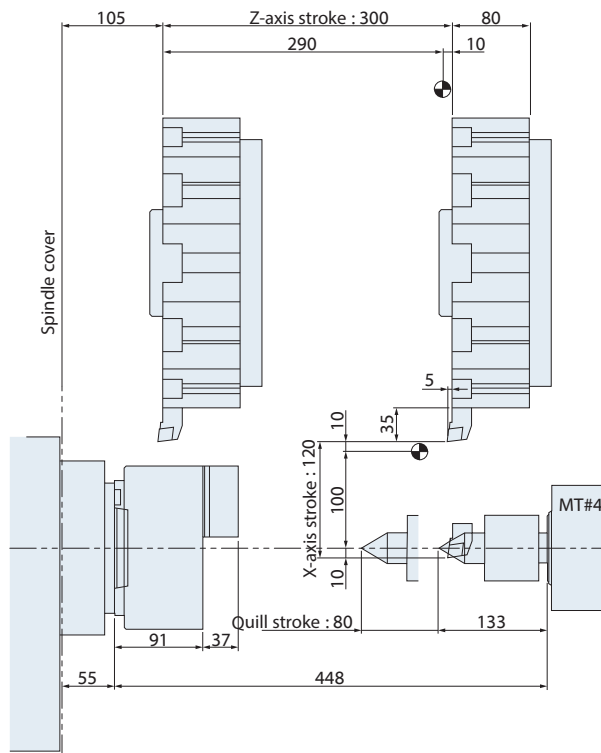
Interference Diagram



Tooling System



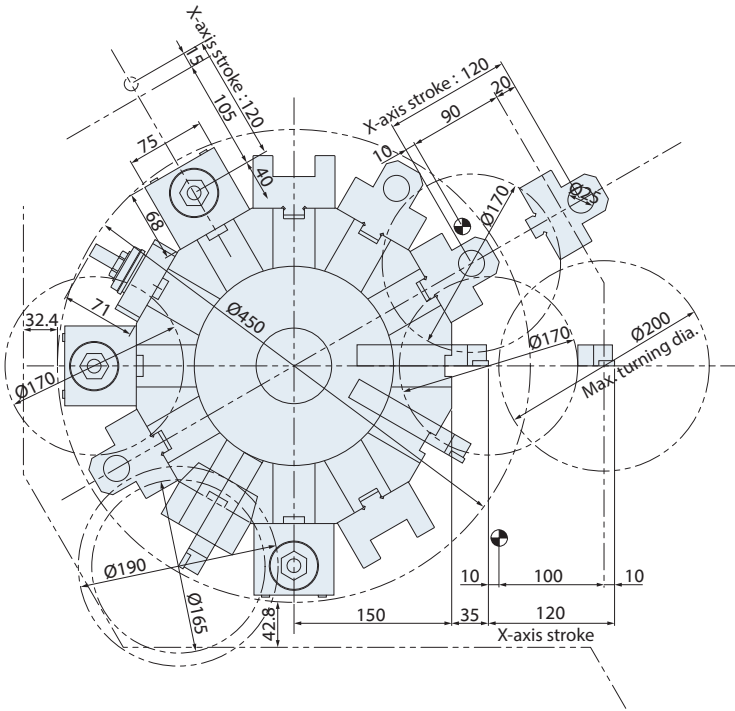
Work Range



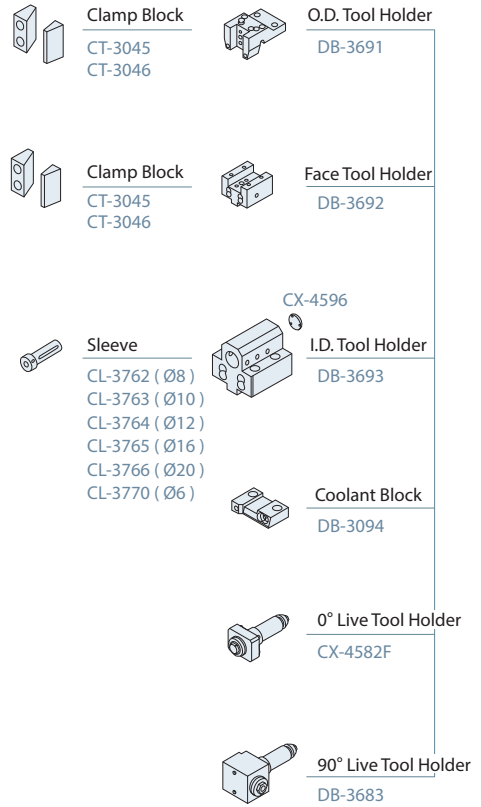
Unit : mm

12-Station Live Tooling Turret

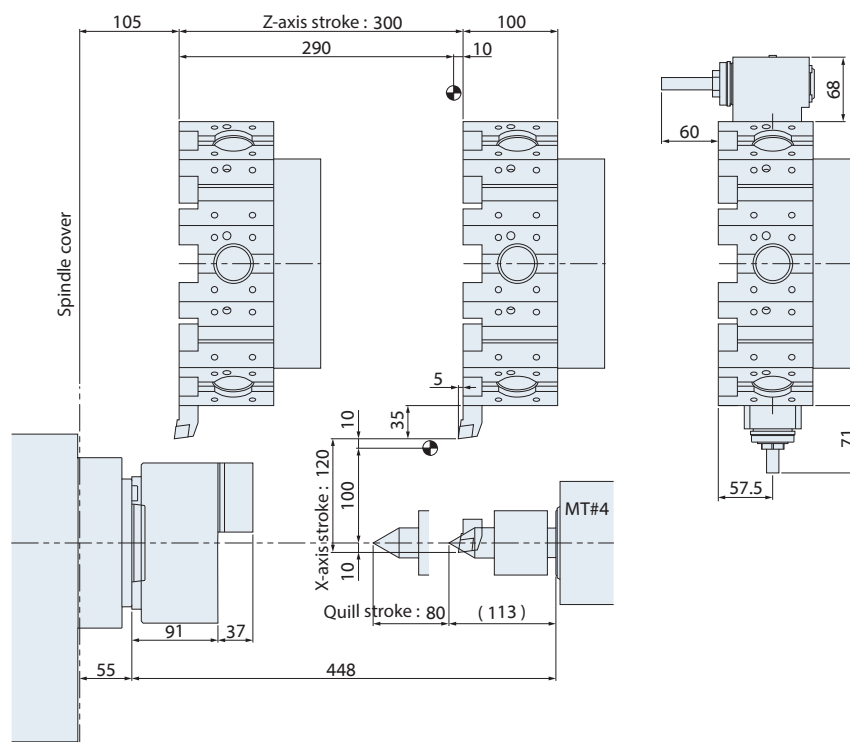
Interference Diagram



Tooling System



Work Range



Unit : mm

MACHINE SPECIFICATIONS

■ : Metric ■ : Inch

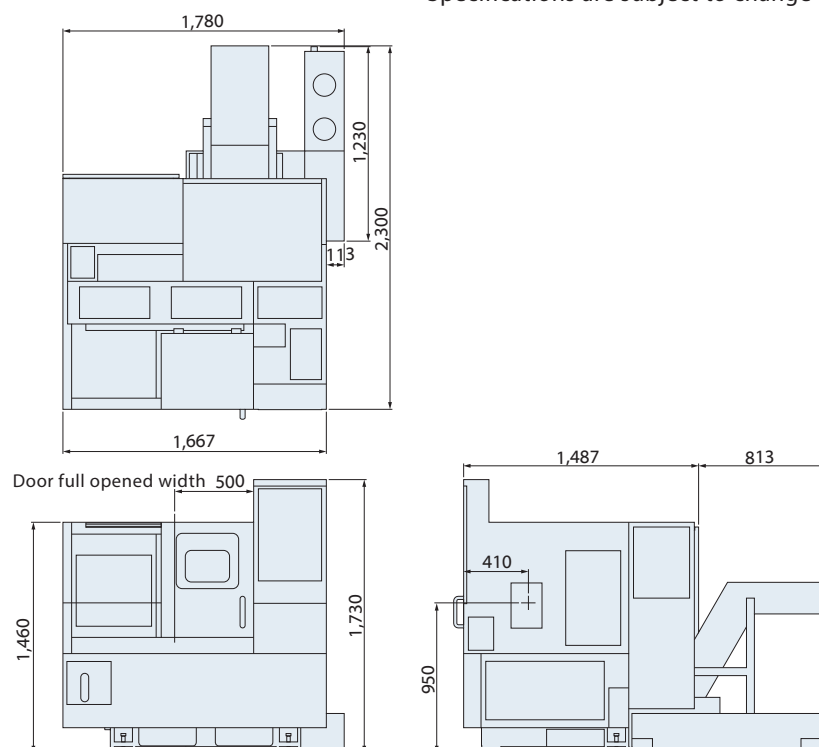
CAPACITY		GLA-1500	
Max. swing diameter		Ø 520 mm	20.4"
Swing over saddle (door)		Ø 290 mm	11.4"
Max. turning diameter		Ø 200 mm	7.8"
Standard turning diameter		Ø 170 mm	6.6"
Max. turning length		250 mm	9.8"
Max. weight load		40 kg	88 lb
Hydraulic chuck		6"	
Bar capacity		Ø 45 mm	1.7"
SPINDLE			
Hole through spindle		Ø 56 mm	2.2"
Spindle bearing diameter		Ø 80 mm	3.1"
Hydraulic cylinder		6"	
Spindle nose		A2-5	
Motor output	5.5 / 7.5 / 11 kW	7.4 / 10 / 14.7 HP	(cont. / 15 min. / 15 %)
Motor full output speed		2,000 rpm	
Spindle drive system		Direct Belt Drive	
Spindle drive ratio		3 : 4 / 1 : 1 (Opt.)	
Max. spindle speed		4,500 rpm / 6,000 rpm (Opt.)	
Spindle full output speed		1,500 rpm / 2,000 rpm (Opt.)	
Cs-AXIS (OPT.)			
Min. indexing angle		± 0.001°	
Dynamic accuracy		± 0.02°	
X & Z AXES			
X / Z axes travel		120 / 300 mm	4.7" / 11.8"
X / Z axes rapid feed rate		18 m/min.	708 IPM
Slide way type		Linear Guide Way	
Feed rates		1 ~ 4,800 mm/min.	1~189 IPM
X / Z axes servo motor		AC 0.75 / 1 kW	1 / 1.3 HP
X-axis ball screw Ø / pitch		Ø 32 mm	1.25" / pitch 6
Z-axis ball screw Ø / pitch		Ø 32 mm	1.25" / pitch 6
X / Z axes thrust (cont.)		374 / 748 kgf	824 / 1,649 lbf
TURRET			
Stations		12	
Indexing drive		FANUC AC Servo motor	
Indexing speed		0.2 sec. Adjacent / 0.5 sec. 180 degrees (Single step)	
Accuracy		Positioning : ± 0.00069°, Repeatability : ± 0.00027°	
O.D. tool shank size		□ 20 mm	3/4"
I.D. tool shank size		Ø 25 mm	1"

■ : Metric ■ : Inch

LIVE TOOLING TURRET (OPT.)		GLA-1500
Max. turning length		250 mm 9.8"
Stations		12
Live tooling stations		6
Live tooling drive motor		1.2 kW 1.6 HP
Live tooling torque		7 Nm 5 lb-ft
Indexing drive type		AC Servo motor
Index speed		0.2 sec. Adjacent / 0.5 sec. 180 degrees (Single step)
O.D. tool shank size		□ 20 mm 3/4"
I.D. tool shank size		Ø 25 mm 1"
Live tooling shank size		ER20
Live tooling rpm range		4,000 rpm
TAILSTOCK (OPT.)		
Quill center taper		MT#4 (Live center)
Quill diameter / travel		Ø 70 / 80 mm 2.7" / 3.1"
Tailstock base travel		Fixed
Programmable quill / base		Yes / No
GENERAL		
Repeatability (X / Y / Z)		± 0.003 mm 0.000118"
NC controller		FANUC Oi-TF
Voltage / Power requirement		AC 200 / 220 +10% to -15% 3 phase / 20 kVA
Hydraulic capacity		18 L 4.7 gal
Coolant tank capacity		150 L 39.6 gal
Coolant pump / pressure		0.74 kW (1 HP , 60 Hz) rated at 3 bar (43.5 PSI)
Machine weight		2,600 kg 5,800 lb
Dimensions L × W × H		1,667 x 1,487 x 1,730 mm 66" x 59" x 69"

Specifications are subject to change without notice.

Machine Layout



Unit : mm



GOODWAYCNC.com

GOODWAY MACHINE CORP.

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